

NIEM-UML High-Level Introduction Transcript

NIEM Program Management Office Resource

Welcome to the NIEM-UML high level introduction. Let's start with the foundations of NIEM. The NIEM data model provides a common vocabulary of agreed upon terms, definitions, and formats for information exchange. Independent of the way information is stored in individual systems. The NIEM core includes data elements that are commonly understood across many established communities or domains. The petal-like objects that extend from NIEM's core represent domains. There are currently 15 domains defined. A standardized process for developing exchanges is repeated and reused throughout all NIEM communities. NIEM is about people, organizations, and communities exchanging information using technologies.

To be practical, information exchange using technology needs to be easy, fast, repeatable, and reliable. Information exchange using technology requires that the structure, format, and semantics of the data as it's in motion, or on the wire, be well understood and precisely specified. The NIEM XML technical specifications define rules for creating information exchange packages that define the in motion data on the wire using these XML technologies. People and organizations think about the information they need to share. NIEM at the XML level defines the structure of data on the wire using XML. Worrying about business information needs, along with the bits and bytes, of hundreds of technology rules can get complicated and requires that the technical specifications be manually produced. NIEM-UML helps address the complexities of information sharing technologies. UML provides high level information models that are easier for people and organizations to understand. Tools automatically generate the bits and bytes needed for on the wire specs, based on the NIEM-UML standard. The way that the NIEM-UML is modeled and generates a tech spec is based on the model driven architecture standards of the Object Management Group (OMG).

Using model driven architecture for information exchange has multiple advantages. Models are easier for both business and technical stakeholders to understand. MDA helps reduce the time and cost to develop and maintain information sharing solutions. XML and NIEM naming design and packaging rules are automatically applied and validated by the MDA technologies. Processes,

services, and information, can be part of a coherent system, and systems of systems architecture, across the full life-cycle of solutions. And multiple technologies can be supported using different MDA generation patterns, such as JSON or the Semantic Web. However, these different generation patterns are not supported by the current NIEM-UML specification.

There are a lot of OMG MDA standards you probably already know about, such as UML or BPMN, for business processes. There's a Common Warehouse Metamodel, for data warehousing, the Meta Object Facility and XML, for model interchange between tools, and SoaML for service oriented architecture modeling. NIEM-UML becomes part of this family of MDA standards. UML, the Unified Modeling Language, is the OMG standard on which NIEM-UML is based. Modeling for NIEM is defined using the built in extension mechanisms of UML. This is called a UML profile. The NIEM-UML profile extends and tailors UML to fully model NIEM information concepts as understood by stakeholders.

Another part of the NIEM-UML specification; the transforms—define how to find how tools produce NIEM technical specifications from UML models, as well as how to convert technical specifications into models, this provides for round trip engineering. Building on and reusing what others have done is a core value of NIEM. NIEM provides reusable reference vocabularies that span multiple domains. These vocabularies are now available as NIEM-UML models. There are over 7,000 terms and concepts in NIEM and this model is continually evolving. This provides a rich resource on which to base information exchanges. However, not all of these concepts are required for any one purpose. A big part of using NIEM is subsetting the reference vocabularies for a particular need. NIEM-UML helps this subsetting process by providing high level UML models of the reference vocabularies and a way to take just the parts you need in an exchange. This is part of the NIEM-UML modeling process. Using the NIEM-UML profile, with UML modeling tools, domain experts combine their own unique needs with the NIEM reference vocabularies to design information exchange models that will ultimately produce NIEM information exchange packages powering the XML on the wire technologies. In the same way, NIEM-UML can help users create new domain vocabularies that will extend NIEM. Domains created with UML will have both a UML and XML representation.

In summary, NIEM-UML is a new NIEM specification that provides for modeling NIEM in UML and producing or reverse engineering information exchange technical specifications using model driven architecture. This reduces the time, cost, and learning curve of information exchange using NIEM. MDA also provides for other aspects of the information sharing solution, such as: business processes, SOA services, and back-end system integration. Since NIEM-UML generates 100% NIEM conformant technical specifications, NIEM-UML Architects and Developers don't need to worry about as much about the technology details. NIEM-UML can be extended to support other technologies, such as JSON and the semantic web. NIEM-UML is in the final stages of the standards process, tools are available now and more are being built.

This concludes the NIEM-UML High-level Introduction. Additional NIEM and NIEM-UML information and tutorials are available on the NIEM website. Thank you for your interest in NIEM-UML.